## REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-14, 28 and 30-33 are pending, of which claims 1-14, 28, and 30 have been amended. Claim 29 has been canceled. No claims have been added. Support for the amendments can be found at least at pages 8-10 and Figs. 1-4 of the Application as filed.

### 35 U.S.C. §101 Claim Rejections

Claims 28-33 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter (*Office Action,* p.3 ¶8). The Office indicates that the claims do not appear to produce a useful and tangible result to form the basis of a practical application needed to be statutory (*Office Action,* p.4 ¶1).

**Claim 28** has been amended and now recites "[a] method of testing an in-test host's support of USB peripherals, comprising" and "determining whether the in-test host supports proper operation of the emulated USB devices based on the USB response messages". Determining whether the in-test host supports proper operation of the emulated USB devices based on the USB response messages is a useful and tangible result which clearly satisfies the statutory requirements of 35 U.S.C. §101. This and other useful results are described in detail throughout the Specification (*e.g., Specification,* p. 3 lns.21-24).

Accordingly, for at least the reasons described above, Applicant respectfully requests that the §101 rejection of claim 28 be withdrawn.

**Claims 30-33** depend from claim 28, and therefore the §101 rejection of claims 30-33 should be withdrawn for at least the reasons described above response to the §101 rejection of claim 28.

**35 U.S.C. §103 Claim Rejections**

**A.** Claims 1-2, 4, 11-12, 28, and 31 are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,636,929 to Frantz et al. (*hereinafter*, "Frantz") in view of an IBM Technical Disclosure entitled "Multiple Control Unit/Device Emulator for Testing Computer Programs" (*hereinafter*, "IBM Technical") and further in view of U.S. Patent No. 6,389,029 to McAlear (*hereinafter*, "McAlear") (*Office Action* pp. 4-5 and 22). Applicant respectfully traverses the rejection.

**B.** Claims 3, 5, and 9-10 are rejected under 35 U.S.C. §103(a) as being obvious over Frantz and IBM Technical in view of McAlear, further in view of a document "Universal Serial Bus (USB) Device Class Definition for Human Interface Devices (HID), Version 1.11, June 21, 2001)" (*hereinafter*, "UsbHid"), and further in view of a document "Universal Serial Bus Specification, Rev. 1.1, September 23, 1998" (*hereinafter*, "UsbSpecs") (*Office Action* p.10). Applicant respectfully traverses the rejection.

**C.** Claims 6-7 and 30 are rejected under 35 U.S.C. §103(a) as being obvious over Frantz and IBM Technical in view of McAlear, and further in view of a document entitled "Code Complete, A Practical Handbook of Software

Construction" by Steven McConnell (*hereinafter,* "McConnell") (*Office Action* p. 14). Applicant respectfully traverses the rejection.

**D.** Claim 8 is rejected under 35 U.S.C. §103(a) as being obvious over Frantz and IBM Technical in view of McAlear, further in view of UsbSpecs, and further in view of a document entitled "Computer Networks Third Edition" by Tanenbaum (*hereinafter*, "Tanenbaum") (*Office Action* p.17). Applicant respectfully traverses the rejection.

**E.** Claims 13 and 14 are rejected under 35 U.S.C. §103(a) as being obvious over Frantz and IBM Technical in view of McAlear, and further in view of Tanenbaum (*Office Action* pp. 28 and 36). Applicant respectfully traverses the rejection.

**F.** Claims 32 and 33 are rejected under 35 U.S.C. §103(a) as being obvious over Frantz and IBM Technical in view of McAlear, and further in view of Tanenbaum (*Office Action* p. 29). Applicant respectfully traverses the rejection.

**Claim 1** recites in part:

> A testing interface device for testing an in-test host's support of USB peripherals, the testing interface device comprising:...operating logic configured to perform actions comprising:...maintaining a correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device, such that upon receiving a USB command message from the in-test host using a USB protocol and corresponding to a particular emulated USB peripheral device, the testing interface device sends the USB command message to the peripheral emulator via one of the logical network ports which corresponds to the particular emulated USB device, and such that when receiving a USB response message from the peripheral emulator using the network communications protocol and corresponding to the particular emulated USB peripheral device, the testing interface device receives the USB response message via the logical network port which corresponds to the particular emulated USB device.

Frantz and/or IBM Technical and/or McAlear do not teach or suggest the combination of features recited in claim 1. For example, Frantz and/or IBM Technical and/or McAlear do not teach or suggest a testing interface device which includes operating logic for maintaining a correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device, as recited in claim 1. More specifically, Frantz and/or IBM Technical and/or McAlear do not teach or suggest a testing interface device which includes operating logic configured to perform actions including maintaining a correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device, such that upon receiving a USB command message from the in-test host using a USB protocol and corresponding to a particular emulated USB peripheral device, the testing interface device sends

the USB command message to the peripheral emulator via one of the logical network ports which corresponds to the particular emulated USB device, and such that when receiving a USB response message from the peripheral emulator using the network communications protocol and corresponding to the particular emulated USB peripheral device, the testing interface device receives the USB response message via the logical network port which corresponds to the particular emulated USB device, as recited in claim 1.

Frantz describes a system for managing a personal computer or server (*i.e.*, the managed computer) using a management console that is remotely located from the managed computer (*Frantz*, col.1, lines 34-37). A user at the management console can use the actual peripheral devices located at the remote management console to interact with the remote management console, and send data to a management subsystem (*Frantz*, col.3 line 65 to col.4 line 47; col.7 lines 45-52). The management subsystem of Frantz is connected to the managed computer via a USB bus which can be provided integrally on the system board of the managed computer, or can be provided as a plug-in board which connects to the system bus of the managed computer (*Frantz*, col.11, lines 22-27). A USB device emulator is located on the management subsystem, and mimics the operation of the actual peripherals which are available at the remote management console (*Frantz*, col.12, line 65 to col.13, line 15).

However, Frantz does not teach or suggest a testing interface device including operating logic for maintaining the correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device as recited in claim 1. Instead, Frantz describes a system for

managing a personal computer (or server) using actual peripheral devices which are connected to a management console that is remotely located from the managed computer (*Frantz*, col.1, lines 34-37). Such managing is presumably done subsequently to any testing, and as such the management subsystem of Frantz is clearly not a testing interface device, as recited in claim 1. With regard to operating logic, Frantz describes that in a preferred embodiment, the actual peripheral devices at the remote console are predetermined and that the management subsystem is programmed with this information (*Frantz*, col.11, lns. 14-17).

Accordingly, Frantz does not teach or suggest a testing interface device including operating logic for maintaining the correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device, as recited in claim 1. The Office has not cited to Frantz as disclosing operating logic for maintaining the correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device as recited in claim 1.

IBM Technical describes a micro-program "for converting a small central processing unit into a device for emulating multiple input/output devices and associated control units" (*IBM Technical*, lines 1-2). According to IBM Technical, "such an emulation capability allows the emulator to be attached to a central processing system for testing the system itself, and for testing computer programs for the system without the necessity of physically attaching the input/output devices and employing people to operate those devices," and

"provides the capability for testing programs which drive currently unavailable devices." (*IBM Technical*, lns. 1-7).

However, IBM Technical fails to cure the deficiencies of Frantz, as it does not teach or suggest a testing interface device including operating logic for maintaining the correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device as recited in claim 1. The Office has not cited to IBM Technical as disclosing such.

McAlear describes a local area network which incorporates the universal serial bus (USB) protocol (*McAlear*, Title). According to McAlear, a plurality of USB devices and/or LAN computers can be connected to a plurality of outer hub devices via a respective plurality of USB link, and the outer end hubs can communicate with the USB devices and LAN computers using the USB protocol (*McAlear,* Abstract). McAlear describes sending USB command messages and USB response messages through a network interface using a network communications protocol (*McAlear,* Figs. 7A-B and col. 24 lns. 25-55).

However, McAlear fails to cure the deficiencies of Frantz and/or IBM Technical, as it does not teach or suggest a testing interface device including operating logic for maintaining the correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device as recited in claim 1. The Office has not cited to McAlear as disclosing such.

None of these cited references describe operating logic for maintaining the correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device as recited in claim 1. At most, the references describe that USB devices are typically accessed by USB addresses

which are assigned when the USB devices are attached and enumerated. Accordingly, claim 1 is allowable over the Frantz, IBM Technical, McAlear combination for at least the reasons described above, and Applicant respectfully requests that the §103 rejection be withdrawn.

**Claims 2-14** are allowable by virtue of their dependency upon claim 1, and are allowable over Frantz, IBM Technical, McAlear combination for the reasons described above in the response to the rejection of claim 1. Additionally, any one of claims 2, 4, and 11-12 may be allowable over the Frantz, IBM Technical, McAlear combination for independent reasons. Accordingly, the §103 rejection should be withdrawn.

**Claims 3, 5, and 9-10** are also allowable over the Frantz, IBM Technical, McAlear, UsbHid, and UsbSpecs combination because UsbHid and UsbSpecs do not address the deficiencies of the Frantz, IBM Technical, McAlear combination as described above in response to the rejection of claim 1. Accordingly, the §103 rejection should be withdrawn.

**Claims 6-7** are also allowable over the Frantz, IBM Technical, McAlear, and McConnell combination because McConnell does not address the deficiencies of the Frantz, IBM Technical, McAlear combination as described above in response to the rejection of claim 1. Accordingly, the §103 rejection should be withdrawn.

**Claim 8** is also allowable over the Frantz, IBM Technical, McAlear, UsbSpecs, and Tanenbaum combination because UsbSpecs and Tanenbaum do not address the deficiencies of the Frantz, IBM Technical, McAlear combination as described above in response to the rejection of claim 1. Accordingly, the §103

rejection should be withdrawn. Additionally, claim 8 is allowable over the Frantz, IBM Technical, McAlear, UsbSpecs, and Tanenbaum combination for independent reasons. For example:

Claim 8 recites a test system as recited in claim 1, wherein: the operating logic is further configured to "automatically send acknowledgment messages from the testing interface device to the in-test host while waiting to receive the USB response messages from the peripheral emulator". None of the cited references teach or suggest operating logic configured to automatically send acknowledgment messages from the testing interface device to the in-test host while waiting to receive the USB response messages from the peripheral emulator, as recited in claim 8.

**Claims 13-14** are also allowable over the Frantz, IBM Technical, McAlear, and Tanenbaum combination because Tanenbaum does not address the deficiencies of the Frantz, IBM Technical, McAlear combination as described above in response to the rejection of claim 1. Accordingly, the §103 rejection should be withdrawn.

**Claim 28** recites in part a method of testing an in-test host's support of USB peripherals, the method comprising:

> determining whether the in-test host supports proper operation of the emulated USB devices based on the USB response messages; and
>
> maintaining a correspondence between the emulated USB peripheral devices and the logical network ports of the testing interface device, such that upon receiving a USB command message from the in-test host using a USB protocol and corresponding to a particular emulated USB peripheral device, the testing interface device sends the USB command message to the peripheral emulator via one of the logical network ports which corresponds to the particular emulated USB device, and such that when receiving a USB response message from the peripheral emulator using the network communications protocol and corresponding to the particular emulated USB peripheral device, the testing interface device receives the USB response message via the logical network port which corresponds to the particular emulated USB device.

As described above in response to the rejection of claim 1, Frantz and/or IBM Technical and/or McAlear do not teach or suggest the combination of features recited in claim 28. For example, Frantz and/or IBM Technical and/or McAlear do not teach or suggest operating logic configured to maintain a correspondence between the one or more emulated USB peripheral devices and the logical network ports of the testing interface device as recited in claim 28.

Accordingly, claim 28 is allowable over the Frantz, IBM Technical, McAlear combination for at least the reasons described above in response to the rejection of claim 1, and Applicant respectfully request that the §103 rejection be withdrawn.

**Claims 30-33** are allowable by virtue of their dependency upon claim 28, and are allowable over Frantz, IBM Technical, McAlear combination for the reasons described above in the response to the rejection of claim 28. Additionally, any one of claims 30-33 may be allowable over the Frantz, IBM Technical, McAlear combination for independent reasons. Accordingly, the §103 rejection should be withdrawn.

**Claim 30** is also allowable over the Frantz, IBM Technical, McAlear, and McConnell combination because McConnell does not address the deficiencies of the Frantz, IBM Technical, McAlear combination as described above in response to the rejection of claim 28. Accordingly, the §103 rejection should be withdrawn.

**Claims 32-33** are also allowable over the Frantz, IBM Technical, McAlear, and Tanenbaum combination because Tanenbaum does not address the deficiencies of the Frantz, IBM Technical, McAlear combination as described above in response to the rejection of claim 28. Accordingly, the §103 rejection should be withdrawn.

**Conclusion**

Pending claims 1-14, 28, and 30-33 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. If any issues remain that preclude issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent action.

Respectfully Submitted,

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By: _____

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